Name: **Enrolment No:**	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2019

Course: Statistical Methods **Semester: II**
Program: BA (Economics) **Time: 03 Hours**
Course code: DSQT1009 **Max. Marks: 100**
Instructions:

SECTION A

		Marks	CO
Q	Choose an appropriate answer.		
1.	(i) In ogive curve the cumulative frequencies (less than and more than type) intersect each other at (a) Mean (b) Median (c) Mode (d) None of the above (ii) The variance of a binomial distribution is (a) npq (b) np (c) nq (d) None of these (iii) A table with all possible value of a random variable and its corresponding probabilities is called a) Probability Mass Function b) Probability Density Function c) Cumulative distribution function d) Probability Distribution (iv) Algebraic sum of the deviation of the set of values from their arithmetic mean is. (a) 1 (b) 0 (c) Mean (d) Infinite	20	**CO1**

(v) Which of the measure of central tendencies will be most appropriate for measuring the average shoes size of the class
(a) Range
(b) Mean
(c) Median
(d) Mode

(vi) The value of Second Quartile (Q_2) is equal to
(a) Mean
(b) Median
(c) Mode
(d) Skewness

(vii) For asymmetrical data, which of the following is correct

(a) Mode=3Mean-2Median
(b) Mode=Mean=Median
(c) Mode=3Median-2Mean
(d) Mode=3Median+2Mean

(viii) Skewness refers to

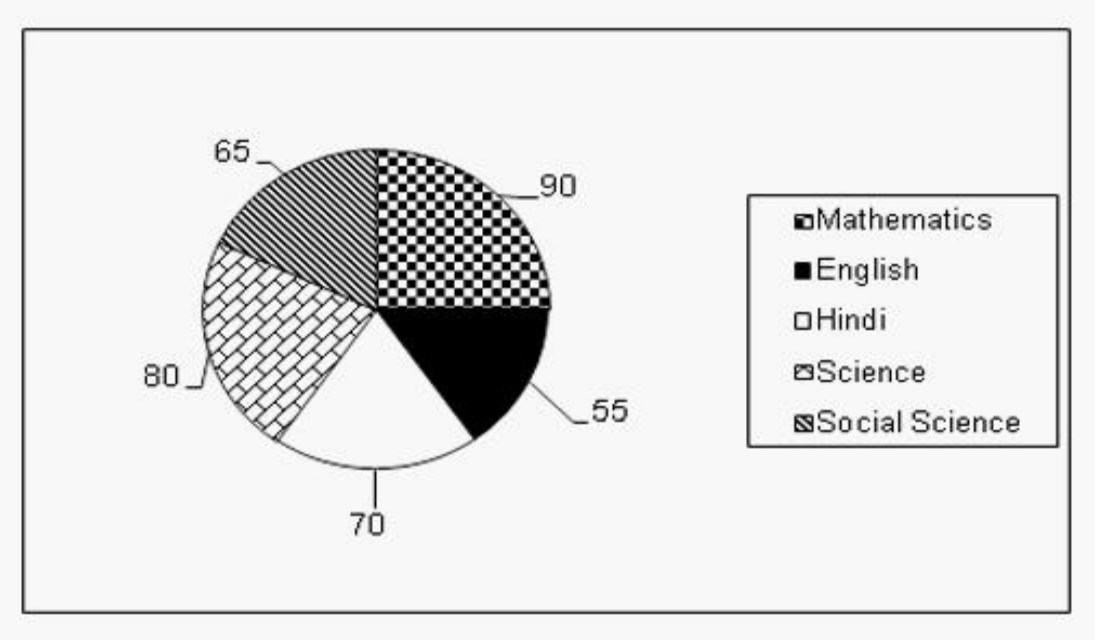
(a) Lack of Symmetry
(b) Degree of Association
(c) Convexity of the curve
(d) Cause and effect

(ix) For Arithmatic Mean (A.M), Geometric Mean (G.M) and Harmonic Mean (H.M) which one of the following is correct

(a) $A.M \leq G.M \leq H.M$
(b) $A.M < G.M > H.M$
(c) $A.M \geq G.M \geq H.M$
(d) $A.M \geq G.M \leq H.M$

(x) Karl pearson coefficient(r) lies between
(a) $0 \leq r \geq 1$
(b) $0 \leq r \leq 1$
(c) $-1 \leq r \leq 1$
(d) $-1 \geq r \leq 1$

SECTION B

Q	Answer any five questions.		
2.	The given pie chart shows the marks scored by Manan in different subjects- English, Hindi, Mathematics, Science and Social Science in an examination. The values given are in degrees. Total marks obtained in the examination is 900.  Calculate the difference of marks scored in Hindi and English?	6	**CO1**
3.	Explain the concept of Kurtosis using figure?	6	**CO1**
4.	Calculate the Standard Deviation for the following data. **Class Interval** / **Frequency (f)** 0 – 5 / 4 5-10 / 1 10 – 15 / 10 15 – 20 / 3 20 – 25 / 2	6	**CO1**
5.	Four bad apples are mixed accidently with 20 good apples. Obtain the probability distribution of the number of bad apples in a draw of 2 apples at random?	6	**CO2**
6.	Write requisites of an ideal measure of central tendencies?	6	**CO1**
7.	Calculate Karl Pearson's Coefficient of Skewness for the following data. 25, 15, 23, 40, 27, 25, 23, 25, 20	6	**CO1**
8.	The average number of goals scored for team A is 2 with a standard deviation 1.09 and the average number of goals scored for team B is 2.5 with standard deviation 1.25. Find which team may be considered as more consistent?	6	**CO2**
	SECTION-C		
Q	Answer the following question.		
9.	State True/False. (a) The median and mode for the data 2, 4, 6, 10, 7, 4, 4 are same.	**5**	**CO1**

	(b) The ideal measure of dispersion is mean deviation. (c) Mode divide the entire population in to two equal halves. (d) In positive correlation both the variable moves in the opposite direction. (e) Mean can not be calculated if single observation will be missing.		
10.	Fill in the blanks. (a) The Geometric mean of 2, 4 and 8 is …… (b) The probability mass function of Binomial distribution is …… (c) The condition for a data to be symmetric is …… (d) Quartile Deviation= ½ (……- Q_1). (e) A fair dice is thrown, the probability of getting an even number is …….	**5**	**CO1**
	SECTION-D		
Q	Answer the following questions.		
11.	The agewise distribution of the employees of UPES are as follow **Age** / **Number of People** 20 - 25 : 14 25 - 30 : 28 30 - 35 : 33 35 - 40 : 30 40 - 45 : 20 45 - 50 : 15 50 - 55 : 13 55 - 60 : 7 (a) Find the Mean for the given data. (b) Calculate Median. (c) Calculate Mode. (d) Check whether the data is symmetrical or not? (e) Find Range?	8 8 8 3 3	**CO3**
12.	Calculate the Regression Coefficients for the following Data. **Price**: 12, 9, 8, 10, 11, 13, 7 **Demand**: 14, 8, 6, 9, 11, 12, 3	10	**CO3**

SET-2

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SECTION A

		Marks	CO
Q	Choose an appropriate answer.		
1.	(i) Algebraic sum of the deviation of the set of values from their arithmetic mean is. (a) 1 (b) 0 (c) Mean (d) Infinite (ii) For asymmetrical data, which of the following is correct (a) Mode=3Mean-2Median (b) Mode=Mean=Median (c) Mode=3Median-2Mean (d) Mode=3Median+2Mean (iii) Skewness refers to (a) Lack of Symmetry (b) Degree of Association (c) Convexity of the curve (d) Cause and effect (iv) For Arithmatic Mean (A.M), Geometric Mean (G.M) and Harmonic Mean (H.M) which one of the following is correct (a) A.M≤G.M≤H.M (b) A.M<G.M>H.M (c) A.M≥G.M≥H.M (d) A.M≥G.M≤H.M (v) Karl pearson coefficient(r) lies between	**20**	**CO1**

	(a) $0 \leq r \geq 1$ (b) $0 \leq r \leq 1$ (c) $-1 \leq r \leq 1$ (d) $-1 \geq r \leq 1$ (vi) Which of the measure of central tendencies will be most appropriate for measuring the average shoes size of the class (a) Range (b) Mean (c) Median (d) Mode (vii) The value of Second Quartile (Q_2) is equal to (a) Mean (b) Median (c) Mode (d) Skewness (viii) In ogive curve the cumulative frequencies (less than and more than type) intersect each other at (a) Mean (b) Median (c) Mode (d) None of the above (ix) The variance of a binomial distribution is (a) npq (b) np (c) nq (d) None of these (x) A table with all possible value of a random variable and its corresponding probabilities is called a) Probability Mass Function b) Probability Density Function c) Cumulative distribution function d) Probability Distribution		
SECTION B			
Q	Answer any five questions.		

<table>
<tr><td>2.</td><td>The arithmetic mean of the runs scored by two batsman Akhilesh and Manan in the series are 50 and 48 respectively. The standard deviations of their runs are respectively 15 and 12. Who is the most consistent batsman?</td><td>6</td><td>CO1</td></tr>
<tr><td>3.</td><td>Explain the concept of Skewness using figure?</td><td>6</td><td>CO1</td></tr>
<tr><td>4.</td><td>Find the standard deviation from the following data.
<table>
<tr><th>Size</th><th>Frequency (f)</th></tr>
<tr><td>10</td><td>2</td></tr>
<tr><td>11</td><td>7</td></tr>
<tr><td>12</td><td>11</td></tr>
<tr><td>13</td><td>15</td></tr>
<tr><td>14</td><td>10</td></tr>
<tr><td>15</td><td>4</td></tr>
<tr><td>16</td><td>1</td></tr>
</table></td><td>6</td><td>CO1</td></tr>
<tr><td>5.</td><td>Four bad apples are mixed accidently with 20 good apples. Obtain the probability distribution of the number of bad apples in a draw of 2 apples at random?</td><td>6</td><td>CO2</td></tr>
<tr><td>6.</td><td>Write requisites of an ideal measure of dispersion?</td><td>6</td><td>CO1</td></tr>
<tr><td>7.</td><td>For the data given below, construct the cumulative frequency table and plot its ogive curve.
<table>
<tr><td>Marks</td><td>0 - 10</td><td>10 - 20</td><td>20 - 30</td><td>30 - 40</td><td>40 - 50</td><td>50 - 60</td><td>60 - 70</td><td>70 - 80</td></tr>
<tr><td>Frequency</td><td>3</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>12</td></tr>
</table></td><td>6</td><td>CO2</td></tr>
<tr><td>8.</td><td>A company manufactures different types of electric appliances. It has been using radio for advertising its products. The following table shows amounts of radio time (X, in minutes) and the number of electrical appliances sold (Y) over the last six weeks.
<table>
<tr><th>X</th><th>Y</th></tr>
<tr><td>25</td><td>16</td></tr>
<tr><td>18</td><td>11</td></tr>
<tr><td>32</td><td>20</td></tr>
<tr><td>21</td><td>15</td></tr>
<tr><td>35</td><td>26</td></tr>
<tr><td>29</td><td>28</td></tr>
</table>
Calculate the Karl pearson coefficient of correlation between two series?</td><td>6</td><td>CO2</td></tr>
<tr><td colspan="4">SECTION-C</td></tr>
<tr><td>Q</td><td>Answer the following question.</td><td></td><td></td></tr>
<tr><td>9.</td><td>Fill in the blanks.
(a) The Geometric mean of 2, 4 and 8 is ……
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(d) The probability mass function of Binomial distribution is ……
(e) A fair dice is thrown, the probability of getting an even number is …….</td><td>5</td><td>CO1</td></tr>
<tr><td>10.</td><td>State True/False.
(a) The median and mode for the data 2, 4, 6, 10, 7, 4, 4 are same.
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(c) In positive correlation both the variable moves in the opposite direction.
(d) The ideal measure of dispersion is mean deviation.</td><td>5</td><td>CO1</td></tr>
</table>

	(e) Mean can not be calculated if single observation will be missing.		
	SECTION-D		
Q	Answer the following questions.		
11.	Compute the two regeression coefficients using the following data. **X**: 7, 4, 8, 6, 5 **Y**: 6, 5, 9, 8, 2	10	**CO2**
12.	Following is the distribution of marks obtained by 60 students of BBA **Marks** / **Number of Students**: 0 - 10: 4; 10 - 20: 16; 20 - 30: 20; 30 - 40: 10; 40 - 50: 7; 50 - 60: 3 (a) Calculate Median. (b) Find the Mean for the given data. (c) Calculate Mode. (d) Check whether the data is symmetrical or not? (e) Find Range?	8 8 8 3 3	**CO2**